

**What is claimed is:**

1. A semiconductor device comprising:
  - a first insulating interlayer on a semiconductor substrate;
  - a first cell plug on the semiconductor substrate through the first insulating interlayer;
  - a second insulating interlayer on the first insulating interlayer;
  - a silicide contact on a predetermined surface of the first cell plug through the first insulating interlayer; and
  - a second cell plug on the silicide contact through the second insulating interlayer.
2. The semiconductor device of claim 1, wherein the second cell plug is formed of a metallic material with low resistance.
3. The semiconductor device of claim 2, wherein the metallic material is a titanium nitride film.

4. The semiconductor device of claim 2, wherein the first cell plug is formed of a silicon material.

5. The semiconductor device of claim 4, wherein the silicon material is either a monosilicon film or a polysilicon film.

6. The semiconductor device of claim 1, wherein the silicide contact is formed using a metal film.

7. The semiconductor of claim 6, wherein the metal film is formed of titanium (Ti).

8. The semiconductor device of claim 1, wherein the silicide contact is formed directly on the first cell plug through the first insulating interlayer.

9. The semiconductor device of claim 1, wherein the second cell plug functions as a barrier metal layer.